Group Project
Subject: Basic Cross-Platform Application Programming With .NET

Shoes Managements

Prepared by Group 9

Đinh Phạm Hưng Thịnh – SE151538
Bùi Duy Thái – SE151309
Dương Cẩm Nhung – SE151533
Đinh Thế Khang

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Revision History

Name	Date	Reason For Changes	Version
Duy Thai	24 September 2021	Initial draft	1.0 draft 1

1. Case Study

1.1. Introduction

According to statistics in Ho Chi Minh City, the demand for fashion is very high, especially for shoes. Therefore, many businesses and stores want to improve sales productivity with shoe product by using software to store information, minimize error in trading, faster trading and reduce time instead of using traditional ways on paper. So we create a desktop application for shoes management that employees, manager can store, sell their products more easily.

1.2. User function

1.2.1   Manager function

+   Manage shoes product
- Create, update, delete, view, search product.

1.2.2   Staff function

+   Manage order
- Update, view, search order.
- Create order by search and select old customer or add new customer.
+   Manage customer
- Create, update, view, search customer.
+   View product
- View, search product list.

1.2.3   Admin function

+   Statistics
- View order report by day in current month.
- View order report by month with select date range of selected month in current year.
- View order report by year with select date range of selected year.

1.3. Problem

1.3.1   Customer Problem

- Using paper or excel, word to store data, it's hard to learn and take time.

- Hard to record transaction, calculate and pay money by accept only cash or few payment methods
- Import product to inventory take time to records.
- Checking product in stock take time to move.

1.3.2 Solution

We recommend using a software to make everything more easier. Building an desktop application.

1.3.3 Benefit

- Save time, minimize errors.
- Easily manage customer information, product information, order record.
- Easy to calculate order money, more payment methods to use that will increase the income.
- Viewing report to know current income of the store.

1.3.4 Goals

- Increase sales performance.
- Earn more profit by faster work.
- Reach more customer.

2. Database Design

2.1. Entity relationship diagram
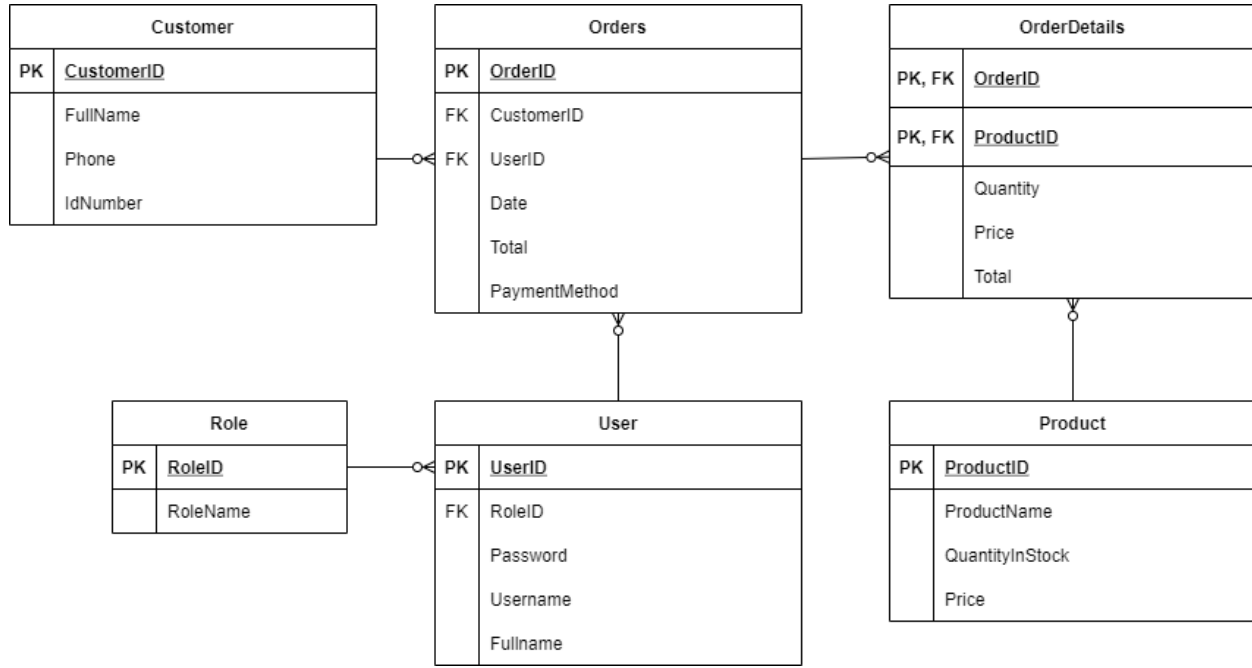
Figure . Partial data model of the Shoes Management System.

2.2. Database
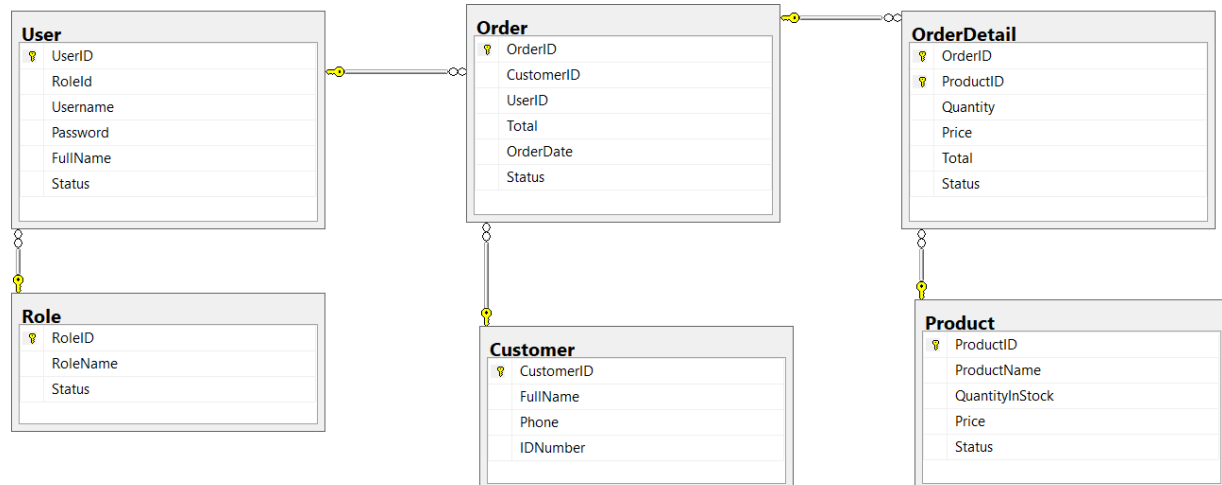
Figure . Database of the Shoes Management System.

3. System Architecture

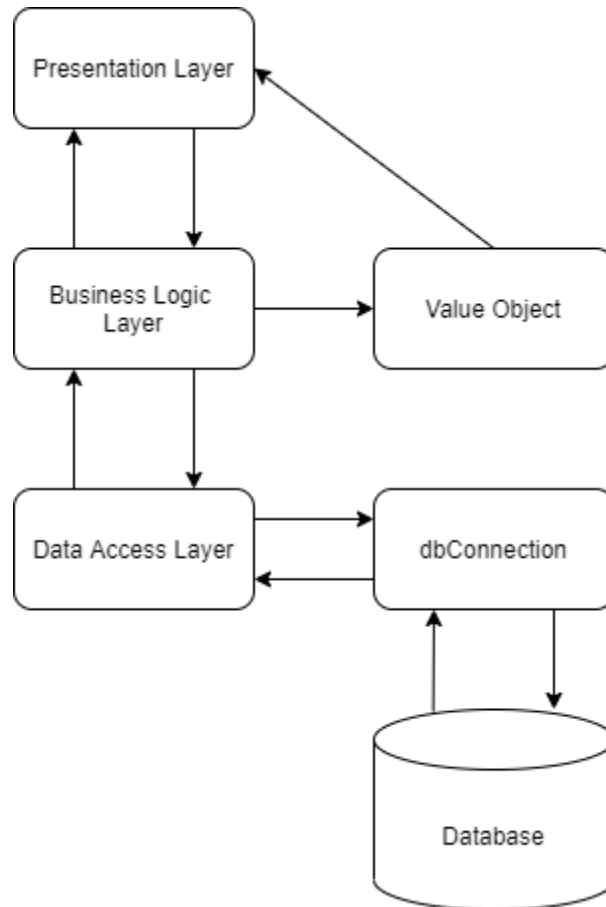## 3.1. Three layer architect

Figure . System design of the Shoes Management System.

Our work are building an window form application with C# .NET 5.0. We implement the Three Layer Architect for this project. For faster coding, we using Entity Framework Core 5.0 and Microsoft SQL Server 2014 version for data source. By following this architecture that organizes application into three logical and physical computing tiers: the presentation tier, or user interface; the logic tier, where data is processed; and the data tier, where the data associated with the application is stored and managed. The benefit of three-tier architecture is that because each tier runs on its own infrastructure, each tier can be developed simultaneously by a separate development team, and can be updated or scaled as needed without impacting the other tiers.

3.2. Class Diagram
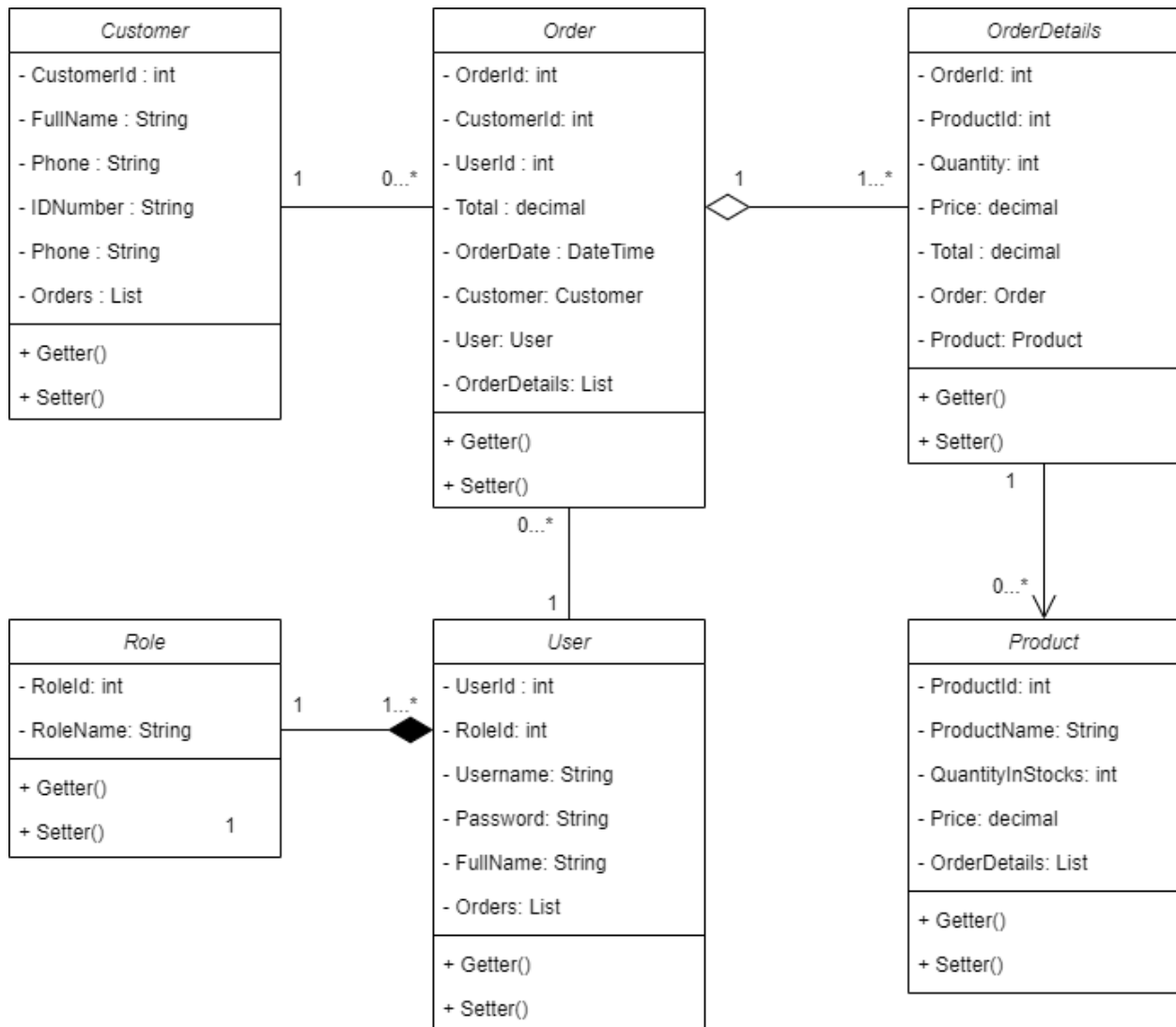
Figure . Class diagram of the Shoes Management System.

3.3. Use case diagram
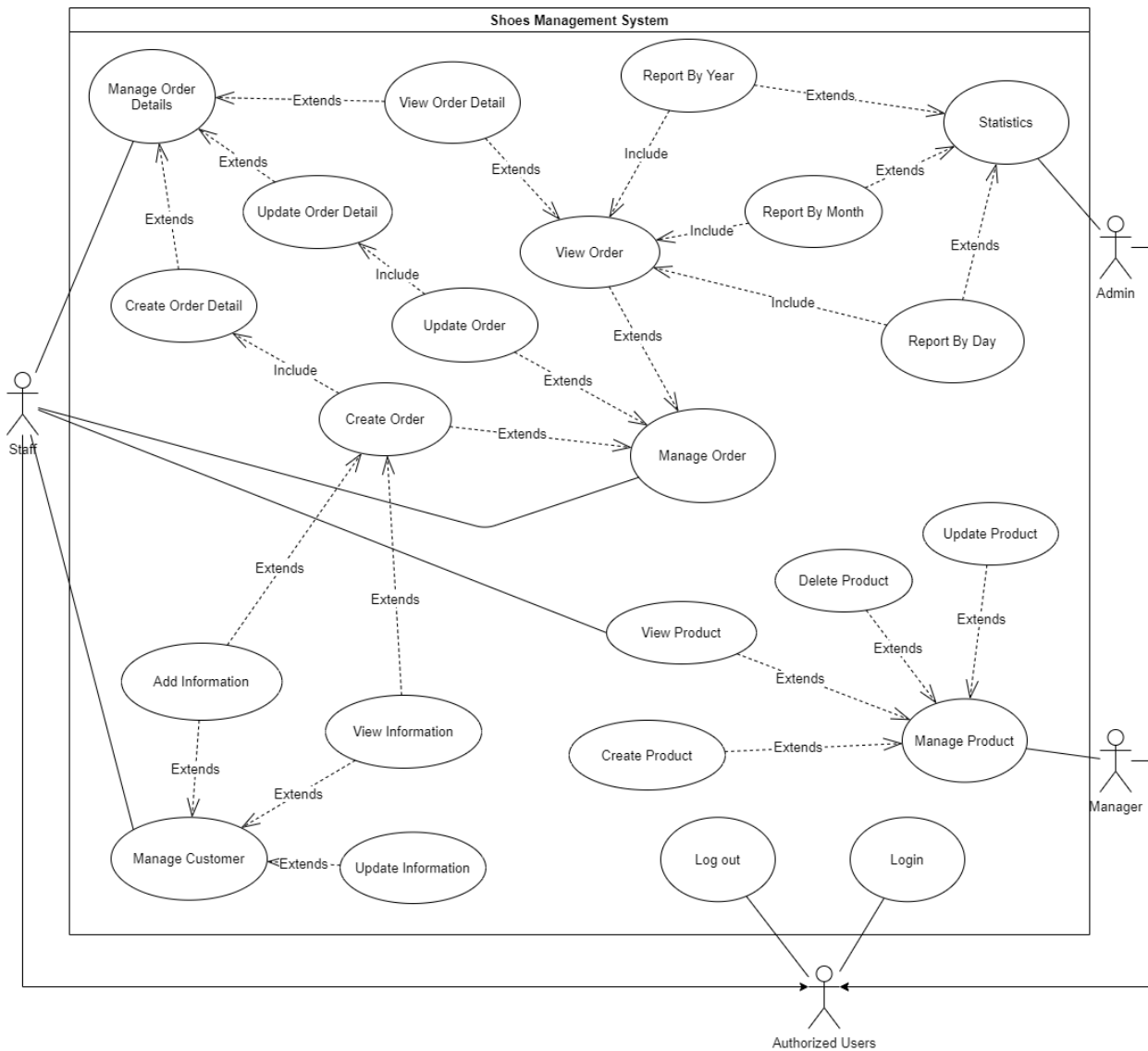
Figure . Use Case diagram of the Shoes Management System.

4. Implementation
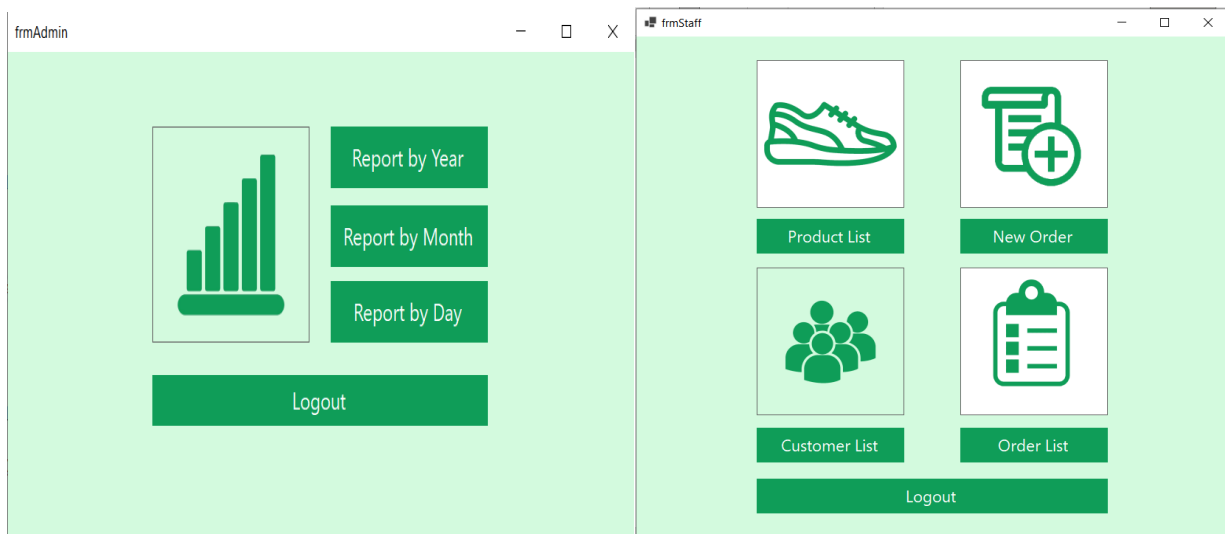
4.1. Login and Logout

Step 1 : At Login form, click on "Login" to move to another page (picture 4.1)

- + Login form fill username and password, click "Login" (picture 4.1)
- + If your account is not exist or leave the field empty, Error warning will display (picture 4.2)
- + If your account if exist and username, password is correct
  - If your roleId is 1, you will move to page for admin
  - If your roleId is 2, you will move to page for manager
  - If your roleId is 3, you will move to page for staff

Login	Login

Login to Your Account

Username

admin123

Password

*****

Login

Warning

Your Username or Password are invalid

OK
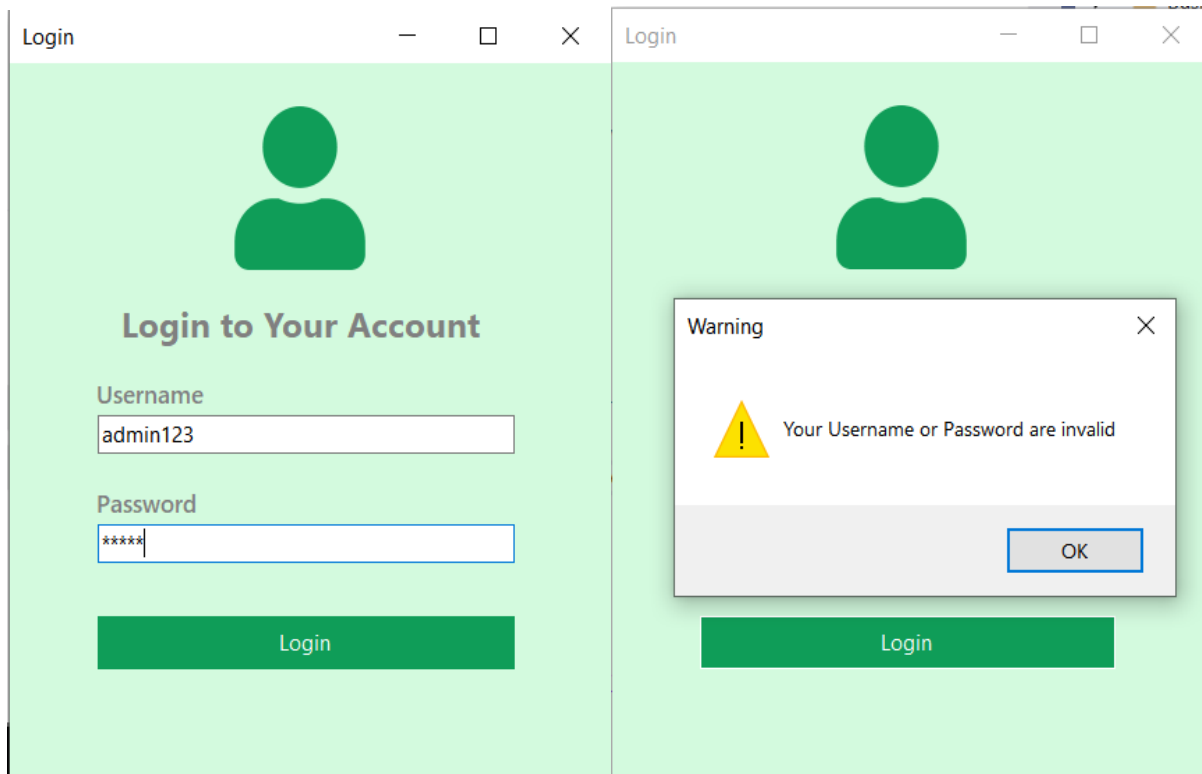
Login

(4.1)   (4.2)

(4.3)

(4.4)
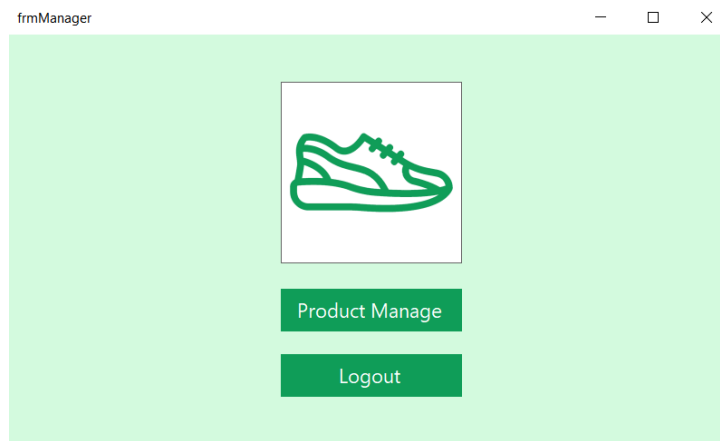
(4.5)

+ After login in, the interface of each role will appear
   -   Admin(4.3),
   -   Staff(4.4),
   -   Manager(4.5).

At the Staff or admin or manager page have logout button.
After Logout you will move to sign up/sign in page.(picture 4.1)
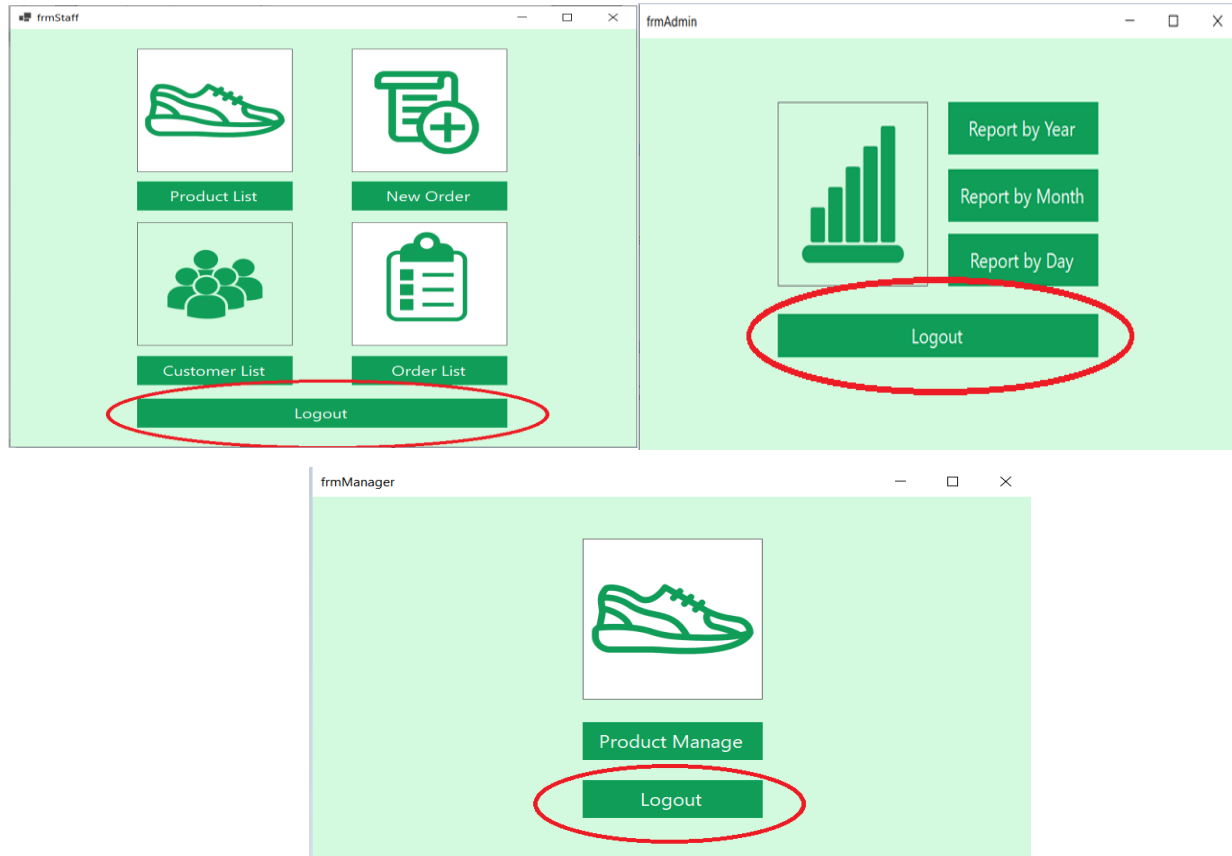
(4.6)

4.2. Manager

+ Step 2.1: After logging in as Manager, we have an interface includes functions: Add, Delete, Update,Search (picture4.7)
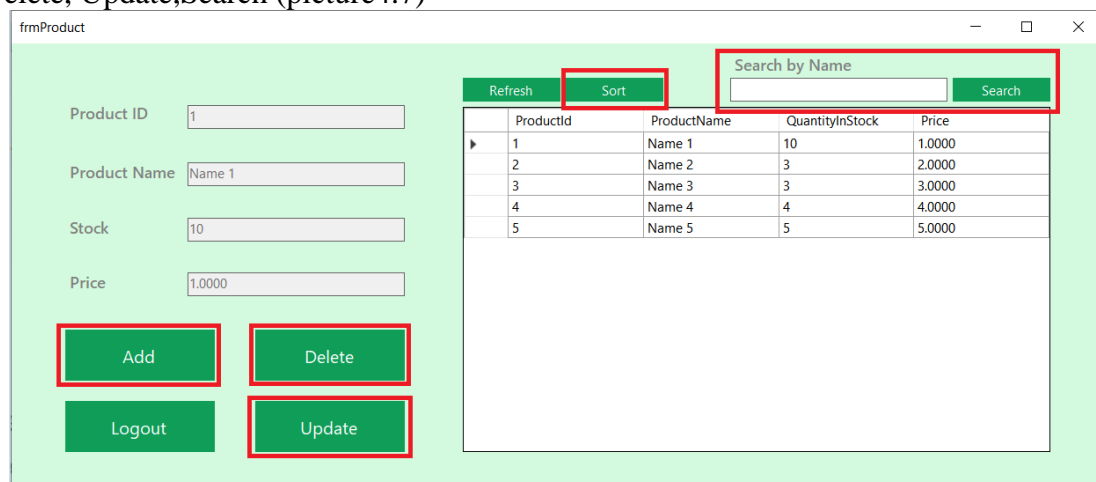
(4.7)

+ Step 2.2: Click Add we will have an interface to add products (picture 4.8)
+ Step 2.3: Fill in the new product information in the form and click Add. The result will look like picture 4.9

(4.8)

(4.9)

+ Step 2.2: Click Update we will have an interface to add products (picture 4.10)
+ Step 2.3: Fill in the new product information in the form and click Update. The result will look like picture 4.11
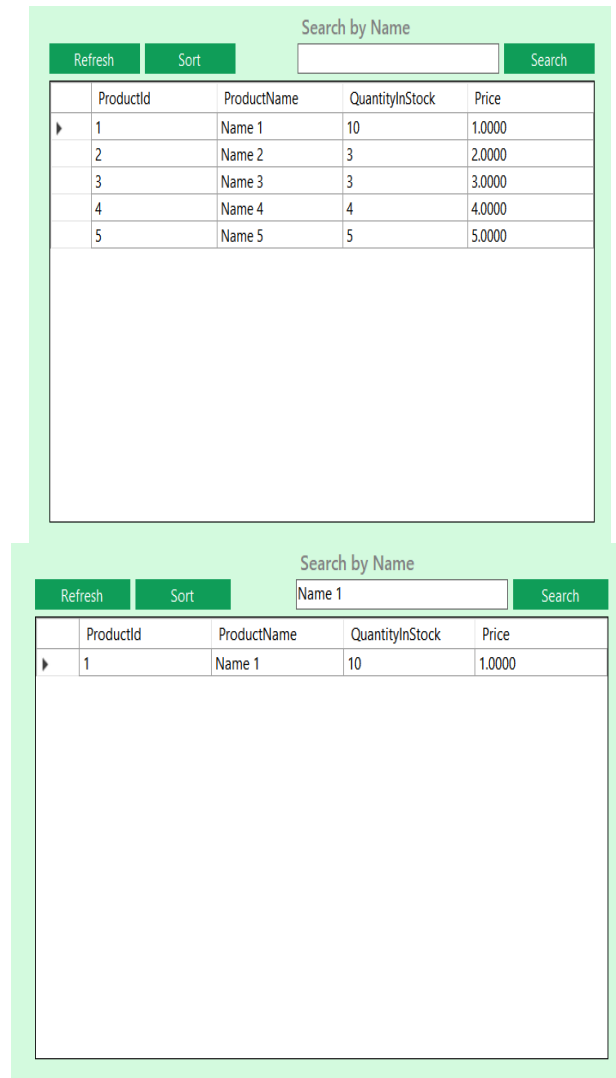
(4.10)

(4.11)

+ Step 2.4: Manager can find product information through "Search by Name" by entering the product name in the blank box and pressing the "Search" button (picture 4.12)

Search by Name

| Refresh | Sort | | Search |

ProductId	ProductName	QuantityInStock	Price
1	Name 1	10	1.0000
2	Name 2	3	2.0000
3	Name 3	3	3.0000
4	Name 4	4	4.0000
5	Name 5	5	5.0000

Search by Name

| Refresh | Sort | Name 1 | Search |

ProductId	ProductName	QuantityInStock	Price
1	Name 1	10	1.0000

(4.12)

+ Step 2.5: Manager can press the "Refresh" (picture 4.3) button to refresh the data or "Sort" (picture 4.14) button to sort the order of QuantityInStock

ProductId	ProductName	QuantityInStock	Price
1	Name 1	10	1.0000
2	Name 2	3	2.0000
3	Name 3	3	3.0000
4	Name 4	4	4.0000
5	Name 5	5	5.0000

ProductId	ProductName	QuantityInStock	Price
5	Name 5	5	5.0000
4	Name 4	4	4.0000
3	Name 3	3	3.0000
2	Name 2	3	2.0000
1	Name 1	10	1.0000

(4.13)   (4.14)

4.3. Admin

+ Step 3.1: After logging in to Admin, we will have an interface like Figure 4.15
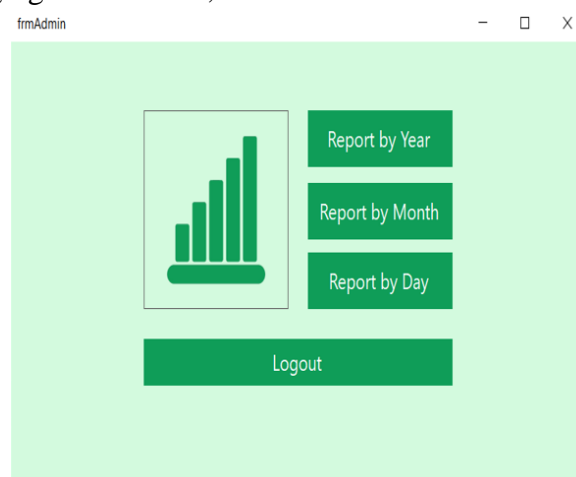
(4.15)

+ Step 3.2: Admin click "Report by Year" to see a statistical report of orders by year
    Admin can manipulate to find orders by clicking on the "Year" box to find the year, and clicking to find the start and end dates at "Start Day and End Day", then click at "Search" button (picture 4.16)
+ Step 3.3: Admin click "Report by Month" to see a statistical report of orders by month
    Admin can manipulate to find orders by clicking on the "Month" box to find the month, and clicking to find the start and end dates at "Start Day and End Day", then click at "Search" button (picture 4.17)

(4.16)   (4.17)

+   Step 3.4: Admin click "Report by Day" to see a statistical report of orders by day
    Admin can manipulate to find orders by clicking on the "Month" box to find the day, and
    clicking to find the start and end dates at "Start Day and End Day", then click at "Search"
    button (picture 4.18)

(4.18)

4.4. Staff

+   Step: 4.1 After logging in to Staff, we will have an interface with functions: Product List,
    New Order, Customer List, Order List (picture 4.19)
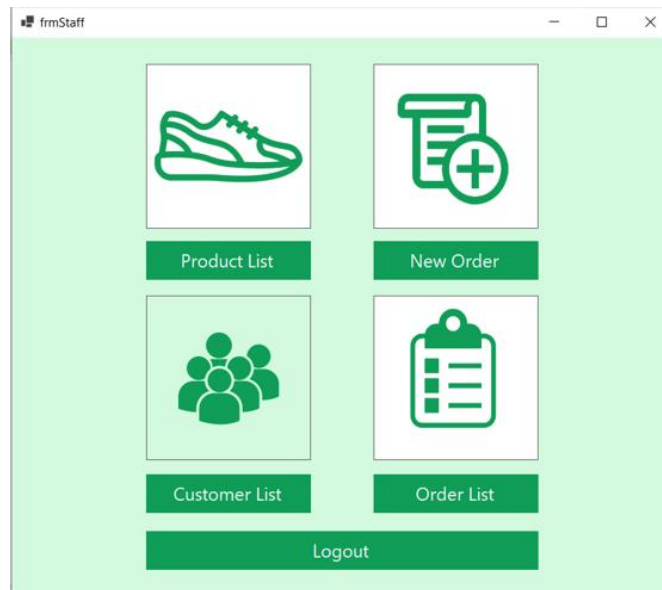
(4.19)

+ Step 4.2: Clicking on the "Product List" will display the product information form(picture 4.19)
+ Step 4.3: Staff can find the product in the "Search by Name" box and click the "Search" button (picture 4.20)
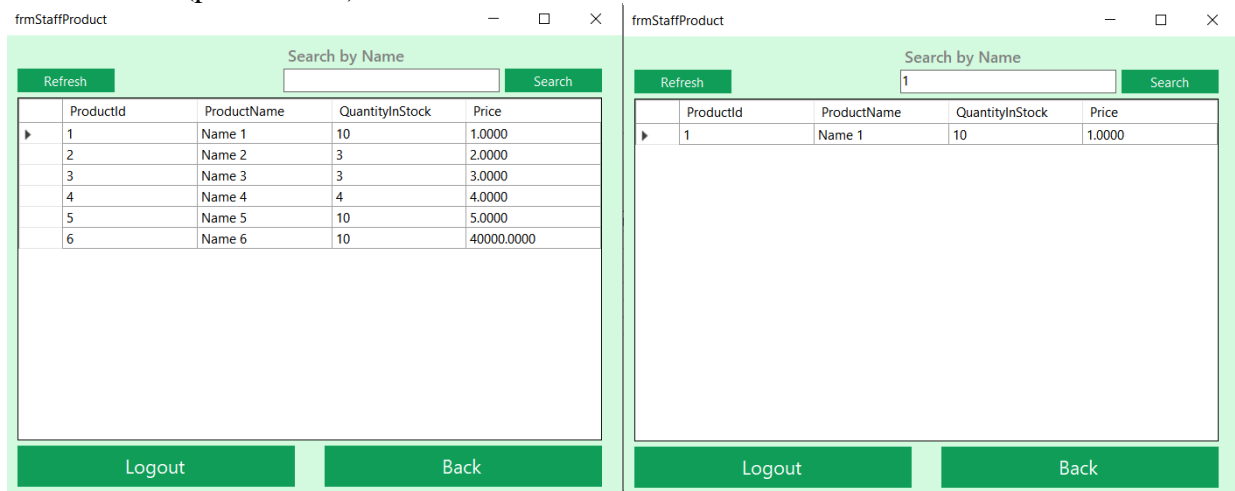
(4.20)

+ Step 4.4: Clicking on the "New Order" will display the order information form(picture 4.19).
+ Step 4.5: Staff can find the product in the "Search" box and select by "Name" (picture 4.22) or "ID" (picture 4.23) in the combobox then click on the "Search" button (picture 4.21) and see the results displayed (picture 4.22 and 4.23).
+ Step 4.6: Staff click on "Refresh" button to refresh the state of the form (picture 4.21).

(4.21)

(4.22)

(4.23)

+ Step 4.7: Staff click "New" button to create a new order for a new customer (picture 4.23)
+ Step 4.8: Fill in the information and the "Add new Customer" form (picture 4.24), then click the "Add" button, the new customer's data will be displayed in the list of users (picture 4.25).

(4.24)   (4.25)

+   Step 4.9: Staff clicks the "Select" button to add products to the customer's order, Order Detail form will appear (picture 4.26).

(4.26)

+   Step 4.10: Staff will adjust the number of products in the "Order Detail" by selecting each product information and adding products with the "Add" button or removing products with the "Minus" button. (picture 4.27)

(4.27)

+ Step 4.11: After adjusting the quantity of the order, Staff clicks "Next" button will display bill information including user and product information (picture 4.28).
+ Step 4.12: Choose a payment method at "Payment Method" combobox including: Cash/Visa/Master Card/Momo (picture 4.28).
+ Step 4.13: Then press the Bill button to issue the invoice, the table shows "sucessful" which means the invoice has been successfully issued (picture 4.29).

(4.28)   (4.29)

+ Step 4.14: Clicking on the "Customer List" will display the customer information form (picture 4.19)

(4.30)

+ Step 4.15: Staff click on "Add" button to add a new customer (picture 4.30).
+ Step 4.16: Fill in the information in the "Add new Customer" form and click on "Add", Staff can click the clear button to start over if the information is wrong (picture 4.31).
    The new person's information has been added to the customer information system (picture 4.32).

(4.31)   (4.32)

+ Step 4.17: Staff click on the information of one customer then click on "Update" button to update customer (picture 4.30).
+ Step 4.18: Fill in the information in the "Update new Customer" form and click on "Update", Staff can click the "Clear" button to start over if the information is wrong or "Reset" to return to the original state (picture 4.33).
+ The new person's information has been added to the customer information system (picture 4.34).

(4.33) (4.34)

+ Step 4.19: Clicking on the "Order List" will display the order information form(picture 4.19)
+ Step 4.20: Staff click on the customer information will display the "Order Detail" form to see the customer's order(picture 4.35).

(4.35)

+ Step: 4.21 Staff click on the information of the customer to delete and press the "Delete" button (picture 4.35).
+ Step: 4.22 Staff click on the information of the customer to update and press the "Update" button Staff can press Remove or Minus button to change order quantity (picture 4.36).

frmOrderUpdate   —   ☐   ✕

Order Details

Quantity

1

	ProductName	Quantity	Price	Total
▶	Name 2	2	2.0000	4.0000
	Name 3	1	3.0000	3.0000
	Name 6	2	40000.0000	80000.0

Minus

Remove

Order ID   24

Staff Name   Tai Khoan Staff

Customer Name   Yummi

ID Number   1234

Total   0

Order Date   11/6/2021 7:32:44 PM

(4.36)